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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

SCHEIBEL, ROBERT C

ART UNIT PAPER NUMBER

2666

DATE MAILED: 06/09/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/526,117

Applicant(s)

TSCHUDIN, CHRISTIAN

Examiner

Robert C. Scheibel

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 5-17 is/are rejected.
- 7) ☒ Claim(s) 2-4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 3/10/2004 have been fully considered but they are not persuasive. This action is non-final, however, due to the new grounds of rejection introduced regarding claims 11 and 12 under 35 U.S.C. 112, second paragraph.

2. Regarding applicant's response to the rejection of claims 11 and 12 under 25 U.S.C. 112, first paragraph, the examiner agrees with the applicant's argument that the concept of using something other than the structure of a table can be enabling in the sense that something other than a table structure is known to those of skill in the art. Therefore, the previous rejection under 35 U.S.C. 112, first paragraph has been withdrawn. However, the examiner does not agree that the cited passage of Calvert defines the meaning of "table structure". The examiner further contends that the scope of this limitation is not at all definite. For example, the claim language and the specification cite "an array of records" as an example of an alternative to a table structure; the examiner considers this type of structure to be within the scope of "table structures". See the rejection under 35 U.S.C. 112, second paragraph, for more details.

3. Examiner has considered applicant's response to the rejection of claims 1, 5, and 10-17 under 35 U.S.C. 102 (a) (previously misstated as 102 (e)) on pages 6-8.

Regarding the assertion that Banchs does not disclose merging the concept of operation code and routing table, the examiner agrees that Banchs does not disclose the merging of the code cache and the conventional routing table. However, the broad

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claim language is anticipated by Banchs in that the code cache is a routing table which in itself discloses all the features of claims 1 and 16 as indicated in the rejection below.

This same reasoning applies to the similar arguments that (a) the code cache is independent of routing (it contains code that directs routing and is not completely independent of routing), (b) the routing table and code cache are shown as different entities (this is not relevant to the rejection as stated below as the code cache is one of the plurality of route tables claimed), (c) there is no wording supporting an operation code in the routing table of Banchs. Based on this, the basic rejection is upheld. Note that more detail has been added in the rejection below to support this reasoning.

4. Examiner has considered applicant's argument regarding claims 5, 11, and 12 on page 8; however, the rejection is still made on the basis of the interpretation of the code cache as a route table as indicated above.

5. Examiner has considered applicant's argument regarding claim 9 on page 8. The specific citation cited in the previous office action does not anticipate the limitations of this claim. However, examiner has provided the specific location in Banchs which anticipates this claim in the updated rejection below.

6. Examiner has also considered applicant's comments regarding claims 10, 14, and 15, but disagrees, as stated above, in view of the broad claim language.

7. Examiner has considered applicant's arguments regarding the rejection of claims 6-8 under 35 U.S.C 103(a) on pages 9-11. However, this rejection under 35 U.S.C. 103 (a) has been replaced in favor of the rejection under 35 U.S.C. 102(a) below, rendering the arguments moot.

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8. Applicant is reminded that claim 1 would be allowable if amended to include all the limitations of claim 2. This would also render all claims dependent on this amended claim 1 allowable (if the 112 rejections are overcome).

Drawings

9. Figures 1-3 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

10. The disclosure is objected to because of the following informalities:

- In line 6 of page 5, “an other” should be changed to “another”;
- In line 27 of page 6, “bloc” should be changed to “block”;
- In line 32 of page 14, claims 1 to 12 are referenced; the disclosure may not refer to claim numbers as the claims may change during the prosecution of the application. This reference must be removed.

Appropriate correction is required.

11. The specification is objected to because it does not include a Brief Description of the Several Views of the Drawing(s): See MPEP § 608.01(f). A reference to and brief description of the drawing(s) as set forth in 37 CFR 1.74.

Claim Rejections - 35 USC § 112

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12. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

13. Claims **11-12** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim **11**, the phrase "for instance" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. Claim **12** is rejected as being dependent on indefinite claim **11**. Further regarding claim **12**, the phrase "for instance" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d).

Further, claim **11** recites the limitation "has a data structure that is different from a table structure". The scope of this limitation is indefinite. The claim must provide a more definite description of what is meant by table structure. For example, the examiner considers "an array of records" to be within the scope of table structure, but the current claim language suggests that this is not within the scope. There are two main ways to overcome this rejection. The first is to more clearly define table structure in the claim language. The second is to specifically define the structure that is to be claimed (i.e. "... has a structure of a linked list of ...") rather than to structure the claim as a statement of what the structure is not.

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14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

15. Claims **1 and 5-17** are rejected under 35 U.S.C. 102(a) as being anticipated by Banchs et al ("Multicasting Multimedia Streams with Active Networks").

Regarding claims **1 and 16**, Banchs discloses the step/item of providing at least one route table in the code cache and routing table. In light of the broad claim language, the code cache is interpreted as a route table because it contains information (code) related to the routing of the packets. At least one of these tables (the code cache) contains an input index field and at least one operation code as described in paragraph 2.1.3 of Banchs. In order for the capsule to identify the whether the code it requires is in the code cache, the code cache must have an input index field. Banchs discloses the step/item of assigning a selector serving as indexing datum to each data packet in the protocol identifier and the particular capsule type within the protocol described in lines 1-5 of section 2.1.2. The capsule is the token described in the assigning step/item. Banchs discloses the step/item of matching the selector with the input index field of said at least one route table in lines 2-3 of section 2.1.3. The capsule determining if the code required is in the code cache is the matching step. Banchs discloses the step of execution on the matched token of the operation contained in the matched route table entry in lines 2-3 of section 2.1.3 ("it is executed").

Regarding claim 5, section 2.1.3 discusses updating the code cache (which is one of the route tables as discussed above) and discloses the limitation of the route table comprising an entry containing an operation code that enters route table entries.

Regarding claim 6, Banchs discloses the limitation of the operation code comprising a reference to an externally installed subroutine in the ANTS system. Section 2.1.3 "Dynamic Code Management" describes how the code is externally installed. Clearly, multiple subroutines are run in this code (see section 2.1.2 and the explanation of running the "evaluate" method as well as the serialization and deserialization methods.) Therefore, at least one of the route tables (the code cache) contains a reference to an externally installed subroutine.

Regarding claim 7, Banchs discloses that capsules can spawn their own threads (section 2.1.1) and also discloses that capsules can generate new capsules (section 2.1.4). This discloses the limitation of an operation code altering (creating, for example) another module. Banchs further discloses the modification of another extension in the updating of the code cache in section 2.1.3 "Dynamic Code Management".

Regarding claim 8, Banchs discloses the limitation that the data stored in the token is formed such that the program flow (the required code described in section 2.1.3) is executed based on information contained in the token (the reference to the forwarding routine discussed in lines 5-7 of section 2.1) and the route table (the code in the code cache and the entry in the routing table). This is described in lines 8-11 of section 2.1.1.

Regarding claim **9**, the limitation that wherein tokens for which no match with entries of the route table is possible, are deleted, is disclosed in section 2.1.4. This section describes how tokens (capsules as explained above) are deleted when the TTL value is negative. No match with entries of the route table is possible for capsules with a negative TTL value, thus disclosing the limitation of claim 9.

Regarding claim **10**, Banchs discloses the limitation that at least one default processing routing is provided and run when a token finds no match in the routing table in lines 3-6 of section 2.1.3. This passage describes that if the code required is not found (the token doesn't match), the active node generates a request capsule (default processing routine).

Regarding claims **11-12**, Banchs discloses the limitation of the at least one routing table having a data structure different from a table structure and the limitation of auxiliary data structures being provided to access the entries in the code cache; a cache structure is different from a table structure and is an auxiliary data structure.

Regarding claim **13**, the limitation that at least one route table entry contains more than one operation is disclosed throughout Banchs. It is clear that the intent is for the code cache to contain multiple instructions (see the second sentence of the abstract, for example).

Regarding claim **14**, Banchs discloses the limitation that the selection of route table entries is non-deterministic in section 2.1.3. This section indicates that code is removed from the cache according to the LRU principle. This will make the selection of

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entries in the table vary based on the usage patterns in the traffic and thus non-deterministic.

Regarding claim **15**, Banchs discloses the limitation that the token's indexing datum being embedded in or deductible from the data packet in section 2.1.2 "Packet Structure".

Regarding claim **17**, Banchs discloses the limitation of at least one microprocessor in that the code is Java code, which typically runs on a general-purpose microprocessor.

16. Claims **1, 6, 9, and 15-17** are rejected under 35 U.S.C. 102(b) as being anticipate by U.S. Patent 4,679,189 to Olson et al.

Regarding claims **1 and 16**, Olson discloses the step/item of providing at least one route table having an input index field and an operation code in Figure 17. The index field is the row number of the table corresponding to the destination map index and the operation code is the ALG field. Olson discloses the step/item of assigning a selector serving as indexing datum to each data packet in the destination map index (see Figure 11 and step 2 of Figure 20). The token is simply the packet which contains both the packet and the selector. Olson discloses the step/item of matching the selector of a packet with the input index field in step 8 of Figure 20. Olson discloses the step of execution of the operation contained in the matched route table entry in steps 16-19 of Figure 21 where the specific processing indicated by the operation code (ALG field) is executed.

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Regarding claim **6**, the limitation that the operation code comprises a reference to an externally installed subroutine is disclosed in the ALG field of Figure 17. This value contains a reference (value of 0-3) to an algorithm to be run.

Regarding claim **9**, Olson discloses the limitation of the token being deleted if no match is found in Figure 20. If either the index equals 0 or the NRTS field equals 0 (indicating an invalid entry), a failure is returned. As explained in lines 39-41 of column 16, this results in the token (packet) being discarded.

Regarding claim **15**, the limitation of the indexing datum being embedded in the data packet is disclosed in figures 10 and 11.

Regarding claim **17**, the limitation of the apparatus comprising at least one microprocessor is disclosed in the CPU 207 of Figure 2.

Allowable Subject Matter

17. Claims **2-4** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Robert C. Scheibel whose telephone number is 703-305-9062. The examiner can normally be reached on 6:30-3:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached on 703-308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

RCS 5-29-04
Robert C. Scheibel
Examiner
Art Unit 2666

[Signature]
DANG TON
PRIMARY EXAMINER